

REPRODUCED AT NATIONAL ARCHIVES

ADVANCE COPY

MIL-M-15071D(SHIPS)
6 June 1961
SUPERSEDING
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MILITARY SPECIFICATION

MANUAL, SERVICE (INSTRUCTION BOOKS) FOR SHIPBOARD ELECTRICAL AND MECHANICAL EQUIPMENT

1. SCOPE

1.1 Scope. - This specification sets forth Bureau of Ships requirements for classes and general contents of manuals necessary for the satisfactory operation, maintenance, installation, overhaul and repair, without the services of manufacturer's representative, of electrical, mechanical, hull, interior communication and fire control shipboard equipment. This specification also includes procedures for submission, review, approval and revision of the service manual. The intent is to accept the manufacturer's commercial type of manual or one prepared in accordance with his commercial practice whenever it is roughly equivalent to the detail requirements included herein.

1.2 Classification. - Service manuals shall be of the following classes:

Class A manual - A basic manual covering a family of equipment of the same basic design and one which can be made applicable to a specific equipment manufactured to that basic design by completing sheets and blanks.

Class B manual - A manual covering a specific equipment for which a class A approval has not been obtained.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on date of invitation for bids, form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-D-963 - Drawing, Electrical, Hull and Mechanical Equipment
for Naval Shipboard Use.

FSC 7610

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

PUBLICATIONS

DEPARTMENT OF DEFENSE

DD Form 441 (Attachment) - Industrial Security Manual for
Safe-guarding Classified Information.

(Copies of specifications and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 The following document forms a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids shall apply.

OFFICIAL CLASSIFICATION COMMITTEE Uniform Freight Classification Rules.

(Application for copies should be addressed to the Official Classification Committee, 1 Park Avenue at 33rd Street, New York 16, N. Y.)

3. REQUIREMENTS

3.1 Media for final manuals and approval. -

3.1.1 Class A manuals. - Whenever a manufacturer's equipment lends itself to the preparation of a manual covering a family of equipments of the same basic design and one which can be made applicable to specific equipments of that design by completing sheets and blanks, the manufacturer may submit to the Bureau of Ships four copies of the basic manual together with examples of the sheets and blanks which will represent the detailed information to be provided for a specific equipment. Approval of a class A manual will be by the Bureau of Ships only and, once approved, the basic manual shall not be modified without the approval of the Bureau of Ships. At the time of class A manual approval, the Bureau will assign a NAVSHIPS number to the basic manual and forward one copy to the cognizant inspection for future comparison. inspection with manuals furnished for specific equipments.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

3.1.1.1 Once approval of a class A manual is granted for a particular basic design of equipment (and size range, if appropriate), the basic manual with the specific detailed information required for the unit of the family being furnished on a contract or order may be supplied by the manufacturer, in the quantities required by that order, without further approval. Copies of the manual prepared for the specific equipments shall be marked by the manufacturer with the NAVSHIPS number of the basic manual followed by "-1", "-2" or higher. Each dash number shall be assigned numerically by the manufacturer for each specific equipment of that family.

3.1.2 Class B manuals. - Class B manuals cover a specific equipment for which class A approval has not been obtained. Once a class B manual has been approved by the Bureau or its field representative, the manual shall not be modified without approval of the Bureau of Ships. (NOTE: Bureau of Ships field representative - Where the term "field representative" is used in this specification, it is limited to field representative of the Bureau of Ships, i. e. Supervisors of Shipbuilding, USN, U.S. Naval Shipyards and Industrial Manager, USN.) Whenever a manual for a specific equipment has not been approved previously, for this or a previous issue of this specification, prior to preparing final manuals, the manufacturer shall prepare and submit a sample manual for approval to one of the following activities, as appropriate:

- (a) Manuals procured on Bureau of Ships contracts - Contractor shall forward four sample copies to the Bureau of Ships for approval and assignment of a NAVSHIPS number with a copy of the forwarding document to the cognizant Government inspector.
- (b) Manuals procured on contracts issued by Naval activities other than Bureau of Ships - Contractor shall forward four sample copies to the Naval activity for approval.
- (c) Manuals procured for the Navy by a commercial activity (such as a private shipbuilder) - Contractor shall forward five sample copies to the commercial activity for approval of both the commercial activity and the cognizant Bureau representative.

3.1.2.1 The Bureau will assign a NAVSHIPS number to each different class B manual as follows:

- (a) Manuals procured on contracts issued by the Bureau of Ships - The NAVSHIPS number will be included in the approval letter.
- (b) Manuals procured on contracts issued by other activities.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

The field approving activities may obtain NAVSHIPS numbers from the Bureau of Ships by one of the following methods:

- (a) Submit two copies of the manual prior or subsequent ~~to~~ to the review and approval.
- (b) Permit the manufacturer to forward two copies of the manual to the Bureau simultaneously with the copies for approval.
- (c) In urgent cases, submit a letter containing the nameplate data of the equipment, the ship applicability and contract or order number.

3.1.2.2 Regardless of the method used for obtaining NAVSHIPS numbers, the letter request shall state the expected delivery date of the manuals and the quantity of manuals being furnished for stock.

3.1.3 Emphasis. - The Bureau of Ships is mainly interested in the adequacy and completeness of contents and the clarity and readability of the information rather than the format. The manual shall be oriented toward operation, maintenance and repair of the equipment by the forces afloat, without the services of a manufacturer's representative. The portions devoted to descriptive matter and theory shall be limited to those which are essential to a proper understanding of the equipment for satisfactory operation, maintenance and repair. The text need not duplicate information which is adequately shown on the photographs, drawings and illustrations incorporated in the manual. (A class A or B manual may be the manufacturer's commercial manual, or one prepared in accordance with his commercial practice whenever it will be suitable for the service intended as determined by the approving activity.)

3.1.4 Security classification. - The security classification of manuals shall be as designated by the bureau or agency concerned. If classified, the security guide issued by DD form 254, forming a part of the contract shall be followed. All pages shall be marked in accordance with the requirements of the Industrial Security Manual for Safeguarding Classified Information (DD 441 (Attachment)). Where a minor amount of classified information is involved, two volumes - one unclassified and one classified shall be provided. The word "UNCLASSIFIED" need not appear on each page of unclassified portions of classified manuals. Revisions shall be classified as required by their subject matter. Regardless of the overall classification of a classified publication, an unclassified title shall be assigned whenever possible and consistent with security and clarity. In all cases, however, if a classified manual is involved, the initials of the classification assigned to the title, standing alone, shall be indicated in parentheses immediately following the title, using one of the following notation (U), (C), (S), (TS). In addition, the covers of classified manuals shall include the markings as indicated on figure 1.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

3.1.5 Detail requirements. -

3.1.5.1 Contents. - Manuals shall contain the following information, arranged in an order appropriate to provide adequate instruction for operation and maintenance of each unit in the equipment and the complete assembly: No particular arrangement, format or chapter titles are required as long as the information is suitably presented.

- Front Matter
- General Information
- Installation
- Principles of Operation
- Operating Instructions
- Maintenance and Repair
- Parts Lists

3.1.5.2 Front matter. - The front matter shall consist of the following:

- (a) Cover
- (b) Title page (for classified manuals only)
- (c) Approval and procurement record page
- (d) List of effective pages
- (e) Table of contents
- (f) List of figures
- (g) List of tables

3.1.5.2.1 Cover and title page. - The cover shall contain the information on figure 1. The title page for classified manuals shall conform to figure 2.

3.1.5.2.2 Approval and procurement record page. - The approval and procurement record (APR) page shall be the first page of unclassified manuals and shall follow the title page of classified manuals and shall conform to figure 3.

3.1.5.2.3 List of effective pages. - A list of effective pages shall be included. In multiple volume manuals, the list of effective pages shall be included in volume 1 only. The list of effective pages shall be modified whenever revisions are incorporated in copies of the manual.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

3.1.5.2.4 Table of contents. - The table of contents shall list all primary divisions and secondary subdivisions such as chapters, sections and pages with their corresponding numbers. Where sub-manufacturers are furnishing associated equipment and a separate manual is not provided, it shall be the responsibility of the prime contractor to integrate and reflect the information provided by the sub-manufacturers within the table of contents. In multiple volume publications, a table of contents shall be prepared for each volume.

3.1.5.2.5 List of figures. - A list of figures shall be prepared listing all figures, their titles and numbers. In multi-volume publications, a list of figures shall be prepared for each volume.

3.1.5.2.6 List of tables. - A list of tables shall be prepared listing all tables, their titles and numbers. In multi-volume publications, a list of tables shall be prepared for each volume.

3.1.6 General information. - General information shall consist of general data, a general description and detailed descriptions, as necessary to supplement data included in drawings and photographs.

3.1.6.1 General data. - General data shall consist of the following data for each component or unit:

- (a) Descriptive (name plate) data necessary to identify manufacturer, type, model and performance or design characteristics.
- (b) Principal overall dimensions.
- (c) Weight.
- (d) Allowable capacities, temperatures, pressures, settings, tolerances or other salient features as appropriate to the item shall be shown.

3.1.6.2 General description. - General description shall consist of a short general description of the equipment; explain briefly what it is, what it will do, and the general overall and interrelated operation of the various units. All information of a general character applicable to the complete equipment shall also be given. Where the text contains terms or symbols not commonly used, definitions or explanatory notes shall be included.

3.1.6.3 Detailed description. - Detailed description shall contain a complete detailed description of units and assemblies which comprise the complete equipment; for example: ship service turbo generator: the turbine, reduction gear, generator and exciter.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

3.1.7 Installation. - Instructions, if necessary to supplement the installation drawings supplied (in accordance with Specification MIL-D-963), shall consist of methods of installation; including packing or unpacking, handling, preparation of foundation, alignment, precautions, mounting instructions, bolting diagrams, safety guards, grounding or bonding, clearances for access, ventilation, motion under shock, and methods of testing to assure satisfactory installation.

3.1.8 Principles of operation. - Figures, sketches, performance curves, and schematic wiring diagrams shall be included to the extent necessary to provide satisfactory operation, maintenance and repair. Operating sequences of automatic and semi-automatic equipment shall be indicated.

3.1.9 Operating instructions. - Information shall include routine and emergency procedures, and safety precautions; maximum and minimum loads; normal temperatures or pressure limits or both; transfer from manual to automatic operation (or the reverse), to be observed in the starting, operating, stopping, and shutting down of the equipment. In addition, action(s) which should be taken in the event of power failure; control air failure; lube-oil failure; partial failure of equipment; and similar conditions shall be described. Action(s) described in the event of partial failure shall include, where practicable, those procedures necessary to provide continued service of the equipment until time is available to repair the equipment. Where operating procedures are to be performed in specific sequence, step-by-step procedures shall be given. Operations shall be numbered in the order in which they are performed. Tables and charts shall be used for the presentation of these instructions where varying operating conditions are encountered.

3.1.10 Maintenance and repair. -

3.1.10.1 Preventive maintenance. - Instructions shall include all maintenance procedures, inspections, tests, and adjustments which should be performed periodically under shipboard conditions for the purpose of preventing failure or impairment of the equipment. A one page summary and time schedule for maintenance procedures, including a check-off table where appropriate, shall be provided. The summary sheet shall identify any items required by the Navy, as indicated at time of approval action, to be included in the ship's permanent history cards. Where necessary instructions shall include procedures for obtaining access to the sub-components for maintenance. Maintenance instructions shall include, where appropriate, but shall not be limited to the following:

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

- (a) A tabulation of periodic, routine, mechanical, and electrical tests and checks which should be accomplished regularly to show that sub-components are operating properly and to insure continuity of service at optimum performance.
- (b) Table or charts, including "wear-limit" charts when appropriate, to indicate what is to be done, when it is to be done based on inspection, and how to do it.
- (c) Utilization of the test facilities which may be incorporated in the various components.
- (d) Instructions for the care, inspection, and cleaning of all pertinent parts.
- (e) Instructions stressing the importance of properly maintaining all safety devices and interlocks provided to prevent damage to equipment or injury to personnel.
- (f) Instructions on lubrication at shipboard operating temperatures shall be provided as applicable, preferably in chart form. They shall include information regarding lubrication recommended by the manufacturer and the type of lubricant to be used. Lubricants shall be described by symbol number, Federal stock number, Military specification and industry standard numbers where applicable and known.
- (g) Instructions on in-place-balancing or other means of reducing noise level if equipment specifications and shipboard application require quiet operation.

3.1.10.2 Trouble shooting, overhaul and repair. - Instructions shall include all information necessary to permit a technician to locate trouble, and to make repairs, adjustments and conduct tests of each component, assembly or sub-assembly of the equipment. The following shall be included:

- (a) Trouble shooting guides for the localization of faults giving possible sources of trouble, the symptoms, probable cause, and instructions for remedying the faults.
- (b) Complete instructions on signal tracing for electric circuits, use of special test instruments and unusual servicing techniques.
- (c) Ample figures and sectional views giving details of mechanical assemblies, and simplified schematic diagrams of electrical, mechanical, hydraulic and pneumatic circuits. Figures contained elsewhere in the manual may be used and referred to under this heading without duplicating them.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

3.1.11 Parts list. - The parts list shall include identification data covering all repair parts to facilitate ready identification of parts for replacement and ordering purposes. Standard hardware, structural parts, or other parts which have no maintenance significance shall not be listed.

3.1.12 Special tools. - A separate list of "special tools" which are supplied with the equipment shall immediately follow the parts tabulation; this list shall contain only tools that are peculiar to the equipment showing the quantity, unit of issue (each, pair, set), description, and manufacturer's identification number. A photograph or sketch showing each special tool as it is being used, shall be included in the manual.

3.1.13 Photographs and drawings. - As the preferred alternate to lengthy, detailed discussions, the manual shall make maximum use of shop photographs, with parts annotated for identification. Photographs may be half-tones or glossy prints. Manuals shall contain reproductions of drawings, additional block diagrams and schematic drawings as necessary to supplement the descriptive matter contained in the text. In every case, a drawing or photograph of the assembly shall be included. Diagrams of switches and relays used in the system showing the terminal numbering shall be inserted as additional drawings. Photographs and sketches shall be included wherever necessary for identification of the parts in the "parts list". Other figures shall be included to supplement or extend the information contained in the photographs and drawings as required for further identification of parts and explanation of the descriptive information contained in the text.

3.2 Format. -

3.2.1 Volumes. - Manuals shall be divided into volumes and by chapters or sections as necessary to provide ready handling and to present orderly instructions for operation and maintenance of the equipment, depending on the size and complexity of the manual.

3.2.2 Numbering. - Any section, chapter, page and paragraph numbering system which facilitates adequate indexing and rapid location of pertinent information is acceptable.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

3.3 Text. -

3.3.1 Wording. - The text shall be factual, specific, concise, and clearly worded to be readily understandable by personnel involved in the operation, repair, overhaul and maintenance of the equipment, and to provide sufficient information for technicians to install, operate, service; and maintain the equipment at peak performance without the services of a manufacturer's representative. Technical phraseology requiring a specialized knowledge shall be avoided except where no other wording will convey the intended meaning, in which case the technical term shall be defined.

3.3.2 Level of writing. - As a general guide, the level of writing should be that for a high school graduate having specialized training as a technician through Navy training courses.

3.3.3 Figures. - Sectional views of assemblies, sub-assemblies and the component parts thereof shall be shown as necessary to supplement the text, photographs, and drawings and aid in the identification of parts. Identification of illustrated parts with listed parts shall be facilitated by the use of index (or piece) numbers and arrows which will identify assemblies, sub-assemblies and component parts thereof.

3.3.4 Indexing and referencing of figures. - Significant features or components of figures shall be identified by brief applicable nomenclature with arrows. Index (or piece) numbers may be used on figures when an extremely large amount of nomenclature is required.

3.3.5 Deleted figures. - When a change requires deletion of a figure without substitution of another, the following sentence shall be inserted "Figure _____ deleted" in or near the place of deletion.

3.3.6 Notes, cautions and warnings. - Notes, cautions and warnings should be used to emphasize important and critical instructions. The use should be as sparing as is consistent with real need. When used, notes, cautions and warnings should immediately precede the applicable instructions and shall be selected in accordance with the following definitions:

- (a) "NOTE" - An operating procedure, condition, etc., which it is essential to highlight.
- (b) "CAUTION" - Operating procedures, practices; etc., when if not strictly observed, will result in damage or destruction of equipment.
- (c) "WARNING" - Operating procedures, practices, etc., which will result in personal injury or loss of life if not correctly followed.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

3.4 Applicability of manuals. -

3.4.1 Identical. - When a class A manual covering a specific equipment or a class B manual which is already available, is applicable in its entirety to the equipment being procured, the applicability is to be extended to include the additional ships by the manufacturer issuing an approval and procurement record page. Copies of the manual required for the ship(s) and local use may be requisitioned from stock by the cognizant Naval supervising activity.

3.4.2 Identical except for minor modifications. - When a class A manual covering a specific equipment or a class B manual is applicable to the equipment being procured except for minor differences, the manufacturer shall modify the manual to cover the differences by the issue of revised or supplementary pages. All revisions to an existing manual shall be approved by the Bureau of Ships, shall require the assignment of a change number, assigned by the Bureau of Ships, and shall be issued by the manufacturer with an approval and procurement record page.

3.5 Revisions. - Revisions to manuals which have been previously distributed shall be prepared as follows:

- (a) New pages - New pages shall be issued when it is found necessary to include new information to augment the content of the original manual.
- (b) Revised pages - Revised pages shall be issued to make changes which apply uniformly to all equipments covered by the manual.
- (c) Supplementary pages - Supplementary pages shall be issued when necessary to provide alternate instructions applicable only to a portion of the total equipments covered by the manual because of minor modifications or minor differences in related components.

3.5.1 Legend for revisions. - All new, revised or supplementary pages shall include the words "new", "revised" or "supplementary", the date and a change number.

3.5.2 Submission for approval. - Four copies of each revision shall be submitted to the Bureau for approval and assignment of a change number. The forwarding letter shall include the number of stock copies and the estimated delivery date of the final copies.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

3.6 Production requirements. - Detail materials, printing procedures and assembly for each manual shall be as approved at time of class A or B manual approval. An acceptable arrangement is set forth in the appendix of this specification. Alternate arrangements will be approved if equivalent performance is provided.

3.7 Distribution requirements. - Unless otherwise specified in the contract or order, distribution of all manuals not exactly identical to one previously procured and assigned a NAVSHIPS number shall be as follows:

- (a) Two copies for each equipment shall be packed with the equipment when the equipment is shipped to stock.
- (b) Two copies for each equipment shall be shipped separately to the cognizant Naval supervising activity marked for each ship on which the equipment is to be installed.
- (c) Two copies to the Bureau of Ships.
- (d) Three copies to the cognizant Supervisor of Shipbuilding when the equipment is to be installed by a private shipyard. (These copies are in addition to the copies for placement on board the ship.)
- (e) Two copies to the Naval shipyard when the equipment is to be installed by that activity. (These copies are in addition to the copies for placement on board the ship.)
- (f) One copy to each U.S. Naval Shipyard except Pearl Harbor and Portsmouth Naval Shipyard (total of nine).
- (g) Two copies to Pearl Harbor Naval Shipyard (for submarine and surface ship equipment).
- (h) Two copies to Portsmouth Naval Shipyard (for submarine equipment only).
- (i) One copy to all active submarine tenders (submarine equipment only).
- (j) One copy to Submarine Bases, New London and Pearl Harbor (submarine equipment only).
- (k) Two copies to Commanding Officer, Ships Parts Control Center, Mechanicsburg, Penn.
- (l) One copy to Naval Supply Centers, Norfolk and Oakland.
- (m) One copy to Naval Supply Depot, Clearfield, Odgen, Utah.
- (n) One copy to Forms and Publications Supply Office, Byron, Georgia.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

(o) Manuals for stock shall be in the following quantities:

<u>Number of equipments</u>	<u>Number of copies</u>
1 to 25	25
26 to 99	50
100 and over	100

These manuals shall be shipped to:

Receiving Officer, Naval Supply Depot, Mechanicsburg, Penn.
Marked for COG I stock.

(p) Copies of approval and procurement record pages in accordance with paragraph 3. 10.

3.8 Unless otherwise specified in the contract or order, (where manuals are not to be drawn from stock, see 3. 4. 1) distribution of all manuals exactly identical to ones previously approved shall be as follows:

- (a) Two copies for each equipment shall be packed with the equipment when the equipment is shipped to stock.
- (b) Two copies for each equipment shall be shipped separately to the cognizant Naval supervising activity marked for each ship on which the equipment is to be installed.
- (c) Copies of approval and procurement record pages in accordance with 3. 10.

3.9 Revisions. - Revision pages shall be distributed to all activities receiving the original manual, and in the same quantity.

3.10 Approval and procurement record page. - This page shall be included in all copies of the manuals and additional copies distributed as follows:

- (a) Two copies to Bureau of Ships.
- (b) One copy to Forms and Publications Supply Office, Byron, Georgia.
- (c) One copy to Ships Parts Control Center, Mechanicsburg, Penn.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

3.11 Military Assistance Program Ships. - Unless otherwise specified in the contract or order, distribution of all final manuals for ships being constructed, reactivated, converted or otherwise readied for transfer under the Military Assistance Program (MAP) shall be as follows:

- (a) Two copies for each equipment shall be shipped separately to the cognizant Naval supervising activity marked for each ship on which the equipment is to be installed.
- (b) Six copies per equipment for each ship to be transferred under MAP to a foreign government. These copies shall be sent to the Military Assistance Advisory Group (MAAG) of the recipient country for delivery to the foreign government which is to receive the ships.
- (c) One copy to the Washington, D. C. Naval Attache of the foreign government to receive the ships.
- (d) Two copies to the Bureau of Ships.
- (e) One copy to the cognizant Supervisor of Shipbuilding when the equipment is to be installed at a private yard.
- (f) One copy to the Commanding Officer, U.S. Navy Forms and Publications Supply Office, Byron, Georgia.
- (g) Twelve copies to Receiving Officer, U.S. Naval Supply Depot, Mechanicsburg, Penn., marked for COGI stock.

4. QUALITY ASSURANCE PROVISIONS

4.1 Contractor responsibility. - The supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or any other inspection facilities and services acceptable to the Government. Inspection records of the examinations shall be kept complete and available to the Government as specified in the contract or order. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Inspection. - Sample copies shall be inspected to determine compliance with the requirements of this specification and for equivalence with the approved (when applicable) sample or basic manual. (If any subsequent issue of manuals is not equivalent to or better than an approved class A manual, class A approval may be withdrawn.)

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

4.3 Content. - The content of the manual shall be checked against the equipment being furnished to assure that it depicts accurately and adequately the equipment and the operating and maintenance procedures required. The NAVSHIPS number on the manual shall be checked for agreement with the NAVSHIPS number on the equipment identification plate where specified.

5. PREPARATION FOR DELIVERY

5.1 Packaging and packing. -

5.1.1 Individual and multi-volume manuals. - Individual copies and multi-volume manuals shall be packed to preclude damage to material. Multi-volume manuals shall be furnished as complete sets.

5.1.2 Manuals shipped with equipment. - When two copies of the manual are packed with the equipment they shall be packed within the shipping container holding the main unit of equipment. The manual(s) shall be so placed that they are readily accessible prior to removing the equipment and shall not be placed within the vaporproof barrier material used to enclose the equipment. Manuals accompanying equipment shall be packaged in a water-proof container. The invoice packing list or bill of lading shall include the NAVSHIPS number of the manual, the quantity and shall indicate which container includes the manuals.

5.1.3 Bulk shipment. - Manuals shipped in bulk shall not be individually wrapped. Containers shall comply with the Uniform Freight Classification Rules or other carrier regulations as applicable to the mode of transportation.

5.2 Marking. - On bulk shipments, interior packages and exterior shipping containers shall be marked with the following information for each item enclosed, except for shipment of an individual copy or an individual set of manuals:

Box (number) of (number)	(to be listed on multiple container shipments)
NAVSHIPS number	(manual number)
Quantity	(in package)

The words "FOR STOCK" shall be endorsed on the package or packages destined for stock, unless otherwise specified. NAVSHIPS numbers shall be indicated on the shipping documents. When a contract or order requires manuals having different NAVSHIPS manual numbers, the stock copies of each manual number shall be shipped separately.

REPRODUCED BY THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

6. NOTES

6.1 Ordering data. - Equipment specifications and procurement documents shall specify the following:

- (a) Title, number and date of this specification.
- (b) Quantity of manuals or APR pages required, delivery date and delivery destinations (see 3.7 through 3.11 inclusive).

6.2 Classes of manuals. - The class of manual need not be specified in equipment specifications or procurement documents. The intent is that the manufacturer shall supply class A manuals for any equipment for which ~~the~~ has received class A manual approval. He shall supply class B manuals wherever he has not been granted class A approval.

6.3 Use of term "Service Manual". - Manuals to this issue of the specification are identified as "Service Manuals", instead of "Technical Manuals" since past use of the work "Technical" tended to denote a comprehensive, expensive, theoretical and engineering document whereas all that is necessary is a document that provides for satisfactory operation, maintenance and repair.

6.4 Elimination of types. - Previous issues of this specification have established different types for manuals. Types have been eliminated from this issue. The content and make-up of each manual should be tailor-made to delineate the particular operation and maintenance procedures required.

6.5 Rights in data. - Wherever unlimited rights in data are not obtained, the manual should eliminate all proprietary information if operation and maintenance suitability is not thereby reduced. If proprietary information is required to be included and only limited rights in data are obtained, a restrictive clause per ASPR Section 9 should be included on the cover of each manual for ready identification.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

Notice. - When Government drawings, specifications or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever, and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

Preparing activity:
Navy - Ships
(Project 7610-N014Sh)

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

APPENDIX

10. SCOPE

10.1 This appendix covers the requirements for the production of service manuals.

20. REQUIREMENTS

20.1 Quality. - All manuals furnished will be subject to 35-mm micro-filming. Letters, lines and symbols shall be of a uniform contrast throughout the documents. Blurred or smudged printing or drop out of characters or lines shall be cause for rejection of the publication. Characters shall be no smaller than 8 point type.

20.2 Typography. - Preferred typography is set forth in table I. When revisions are made to the basic manual, the typography shall conform as nearly as possible to the original manual.

Table I - Typography for 8-1/2 by 11 inch manual.

Use	Type style and size	Capitalization	Leading	Spacing between units
Security classification A condensed	Gothic 14 pt.*	Capitals	6 pt.	
Chapter or section titles	Same type as text	Capitals	6 pt.	48 pt. Following marginal copy, text of illustration 18 pt. Preceding text or illustration
Primary side heads	Same type as text	Capitals	2 pt.	6 pt. Preceding or following text
Subordinate side heads	Same type as text	Capitals	1 pt.	6 pt. Preceding or following text
Figure and table titles	Same type as text	Capitals and lower case	2 pt.	6 pt. Following illustration

*If 14 pt. is not available, next smaller size shall be permitted.

REPRODUCED AT THE NATIONAL ARCHIVES

MIL-M-15071D(SHIPS)

Table I - Typography for 8-1/2 by 11 inch manual. (cont'd)

Use	Type style and size	Capitalization	Leading	Spacing between units
Notes and cautions	Same type as text	Capitals centered	-----	4 pt. Preceding and following text
Warnings	Same type as text	Capitals centered	-----	4 pt. Preceding and following text
Text, table of contents, list of illustrations etc.	Book face (roman) bold 10 pt.	Capitals and lower case	1 pt.	12 pt. Preceding illustration or following figure title 6 pt Preceding or following notes, cautions, warnings
Keys or legends	Book face (roman) italics 8 pt.	Capitals and lower case	1 pt.	6 pt. Preceding figure title or following illustration 12 pt. Preceding text
Parts breakdown listings	Book face (roman) 8 pt.	Capitals and lower case	1 pt.	6 pt. Preceding bottom rule or following headings
Footnotes	Book face (roman) bold 8 pt.	Capitals and lower case	1 pt.	

NOTES

1. It is not the intent of this appendix to qualify the methods or composing equipment to be used, but to specify results required.
2. Leading and spacing may be relaxed where circumstances require such alterations.
3. The above requirements are for type that will reproduce same size. When oversize pages are used, type shall reduce to approximately these sizes.
4. All type specified may be plus or minus 1 point, except that 8 point type shall be the minimum allowable size.

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in

NOTES TO TABLE I (cont'd)

5. The type faces listed below are the most preferred. They are available in linotype or can be closely matched on office composing machines.

Book face (Roman)

Garamond

Modern

Bookman

Tribune News

Times Roman

Antique

Baskerville

Century

6. Type sizes as indicated in the requirements were selected for conservation of space and legibility and should not be changed except:

- (a) When oversize pages are prepared.
- (b) When unusual copy fitting problems arise.

20.3 Layout. -

20.3.1 Text pages. - The preferred layout of 8-1/2 inches by 11 inches text pages is two columns 20 picas wide and 54 picas deep, making an overall page image size of 42 by 60 picas. The text and illustration areas shall conserve space without lessening clarity or legibility. Blanks and spaces shall be avoided, except on fold-ins, and the first major division of the manual (chapter or section) shall be a new odd page.

20.3.2 Fold-ins. - Fold-in pages shall be used only for diagrams, drawings or charts which cannot be reduced for satisfactory presentation on a single page, or when frequent reference is required from other pages of the book. Aprons are required. When fold-in pages are used, they should be held to a two-page fold-in whenever practical and shall not exceed an overall length of 34 inches from the binding edge including the apron. The apron may contain information pertaining to the diagram, drawing or chart.

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20.4 Form-punching and drilling. - Service manuals shall be prepared in looseleaf form unless otherwise specified or approved. Looseleaf publications and revisions shall be punched for looseleaf binding with three holes one-fourth inch in diameter and four and one-fourth inches center to center (for 8-1/2 by 11 inch pages) or with such other drilling or punching as specified. Punching of revision pages shall be the same as punching of the original manuals.

20.5 Size. - Suggested sizes for final trim of service manuals follow:

4-3/8 by 6-3/4
8-1/2 by 11

All dimensions are in inches.

20.6 Paper stock. -

20.6.1 Text pages. - Paper stock for text pages shall be as specified in 20.6.1.1 or 20.6.1.2.

20.6.1.1 Lithography. - Paper stock shall be white offset book free from unbleached or ground woodpulp and shall have a substance weight of not less than 100 pounds per 1,000 sheets, basis 17 by 22 inches.

20.6.1.2 Letterpress. - Paper stock shall be equivalent to white super-calendered book containing not to exceed 5 percent unbleached chemical wood or ground woodpulp, the remainder to be bleached chemical woodpulp, and shall have a substance weight of not less than 90 pounds per 1,000 sheets, basis 25 by 38 inches.

20.6.2 Fold-ins. - Paper stock for fold-in pages shall be equivalent to high wet strength lithographic map, free from unbleached or ground woodpulp, and shall have a substance weight of not less than 48 pounds per 1,000 sheets, basis 17 by 22 inches.

20.6.3 Binders. - Binders shall be of plastic or pressboard and shall accommodate looseleaf manuals punched or drilled as specified in 20.4 and shall facilitate insertion or replacement pages. Commercial type fasteners are to be used. Information to be included on the binders shall not be stamped with gold or any other metal foil. Binder colors for unclassified manuals shall be any color except yellow or red. Binders for confidential manuals shall be red. Binders for secret and top secret manuals shall be yellow.

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NAVSHIPS 000-00
SECURITY CLASSIFICATION

VOLUME I OF III

NAV
SEC

NAV
SEC

NAV

TITLE OF MANUAL (U)

GROUP CLASSIFICATION MARKING (*for classified manuals. See DD254*)

SECURITY CLASSIFICATION

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NAVSHIPS 000-000
SECURITY CLASSIFICATION

MIL-M-15071D(SHIPS)
VOLUME I OF III

TITLE OF MANUAL (U)

WARNING: *This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., Sections 793 and 794. The transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.*

SECURITY CLASSIFICATION

Figure 2 - Title page.

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Approval Authority shall include the applicable letters or correspondence granting approval in conformance with approval procedures.

Remarks space shall be used for necessary comments and the inclusion of information regarding the extension of a manual by minor revisions.

Certification: One of the following certification paragraphs shall be typed in this space, as appropriate.

For Class A manuals covering specific equipments.

It is hereby certified that NAVSHIPS _____ is identical to the basic manual NAVSHIPS _____ approved by the approval data shown above except for the detailed information required for the equipment provided under contract or purchase order _____.

For original Class B manuals.

It is hereby certified that NAVSHIPS _____ to be provided under contract or purchase order _____ has been approved by the approval data shown above.

For identical Class A manuals covering specific equipment and Class B manuals.

It is hereby certified that the manuals to be provided under contract or purchase order _____ are exactly identical to NAVSHIPS _____ approved by authority of approval data shown above.

For Class A manuals covering specific equipment and Class B manuals which have been previously distributed but required minor modification.

It is hereby certified that the manuals to be provided under contract or purchase order _____ are exactly identical to NAVSHIPS _____ approved by the approval data shown above except for the necessary modification as shown in the above remarks space.

NOTE: This page may be typed and reproduced by any economical method and shall be included in _____ Class B manuals and copies of final manuals.

24

APPROVAL AND PROCUREMENT RECORD PAGE

APPROVAL DATA FOR: NAVSHIPS _____
TITLE OF MANUAL: _____

APPROVAL AUTHORITY: _____

CONTRACT OR PURCHASE ORDER _____
SHIPS APPLICABLE MANUALS _____
QUANTITY OF BUILDING EQUIPMENT _____
YARD _____

REMARKS: _____

DATE _____

CERTIFICATION: _____

MANUFACTURER'S SIGNATURE _____
MANUFACTURER'S NAME AND ADDRESS _____
FEDERAL CODE NUMBER (HOME OFFICE) _____

CHANGE NO. _____

Figure 3 Approval and procurement record page

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SPECIFICATION ANALYSIS SHEET**Instructions**

This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Bureau of Ships.

This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be

procured with a minimum amount of delay and at the least cost.

Comments and the return of this form will be appreciated.

Fold on dotted lines on reverse side, staple in corner, and send to Bureau of Ships, Specifications and Standardization Branch, Washington 25, D.C.

Specification**Organization****City****State****Contract No.****Quantity of Items Procured****Dollar Amount**

\$

Material procured under a direct Government contract ☐or a subcontract ☐

1. Has any part of the specification created problems or required interpretation in procurement?

a. Give paragraph number and wording

b. Recommendations for correcting the deficiencies

2. Comment on any specification requirement considered too rigid

3. Is the specification restrictive?

If the answer is "Yes", in what way?

☐

Yes

☐

No

4. Remarks (Attach any pertinent data which may be of use in improving this specification. Place this form and papers in an envelope and send to the Bureau)

Submitted by (Print name and activity)**Date**

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BUREAU OF SHIPS
WASHINGTON 25, D. C.

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NAVY DEPARTMENT

OFFICIAL BUSINESS

21

5

CHIEF, BUREAU OF SHIPS
SPECIFICATIONS AND STANDARDIZATION BRANCH
DEPARTMENT OF THE NAVY
WASHINGTON 25, D.C.

Fold